

Interface

A CRAY RESEARCH, INC. PUBLICATION

AUGUST 1986



Volunteering in Cray style 2
Functionality sells our systems 4
A new marketplace 6
Performance Objectives update 7
News Briefs 10
A gift of life 12

Tonight they may be called upon to locate a downed aircraft or pilot an organ transplant flight. As members of the Chippewa County Civil Air Patrol, Bill Borneman, Keith Schrader, Dave Slowinski, Hank Rosenbaum, and Pete Peloquin are among the many Cray volunteers who extend the company's vision of quality and service to local communities.

Volunteering in Cray style

What is a volunteer? A volunteer is someone who plays the piano at the seniors' home on Saturday afternoons or takes a "little brother" to the baseball game. A volunteer is someone who passes out cookies and orange juice to donors at the blood bank. Whatever the activity, all volunteers have something wonderful in common: the ability to care — and the desire to share.

"The fact that Cray Research has so many community volunteers says a lot about this company and the people who work here," says Joanne Whiterabbit, community affairs coordinator in Minneapolis. "We obviously have top-quality people working at Cray Research. People who take the time to volunteer are the ones who put 60 hours a week into their jobs, 60 hours a week into their families, and still find time to contribute to an organization they really care about. They are the kind of people who are motivated and dedicated in every aspect of their life — and fortunately, they share themselves with the world around them."

To help recognize and promote these valuable contributions, Cray Research has two special programs. First, any employee who both volunteers and gives money to a not-for-profit organization* will receive a double match for the contribution. Additionally, anyone who volunteers 25 or more hours per year on a regular basis is eligible for a \$500 grant to this same organization. The purpose of these programs is to applaud on-going commitment and dedication.

It's hard to count the number of volunteers at Cray Research, but their contributions to both the company and the community are invaluable. Employee contributions to the community are a direct reflection of the style of a company. At Cray Research, this means "the effort to create quality extends to the communities in which we work and live as well."

Cray's reputation as a company is enhanced by the service of all our volunteers, some of whom agreed to share their ideas on volunteering. These people are committed to quality in their work and in their communities. Their services — ranging from musician to pilot, translator to accountant — all require hours of volunteered time and true dedication.

*Cray Research, Inc. recognizes any not-for-profit organization except those with an expressly religious or political mission.

Bob Roberts: For the past three years, Bob has been involved with a California telephone-hotline service designed to provide accurate, non-judgemental information on human sexuality. "Besides helping people make good decisions," explains Bob, "I've gained a true appreciation for communication skills. I've learned to listen, and to communicate with people. These rewards have made a positive difference in my life — both personally and professionally."



Mary Fransway: Mary helps with the accounting for PACT, a parent-teacher organization at First Ward School, an elementary institution in Chippewa Falls, WI. "I got involved with PACT because I wanted to be more actively involved in my children's education," explains Mary. "I wanted to understand our school system, and I wanted to lend my skills where they were needed. So in addition to helping our children's futures, I'm reinforcing job skills."





Kim Salisbury: Kim is part of a five-piece orchestra that accompanies the Ethnic Dance Theater (EDT) in Minneapolis, MN. "I volunteer for EDT because of a strong personal interest in music and dance, but I can see how becoming a volunteer also helps me in a professional sense. I feel that people who have a variety of outside interests show that they are both well-rounded and dedicated, and in turn, they are probably happier and more productive employees."



Susan Batchelder: Susan is an active volunteer for the Hopkins Project, a shelter and community education program for battered women and children in Minneapolis, MN. Currently, a member of the project's board of directors, Susan is involved in fund-raising, grant writing, proposal preparation, and other business aspects of the organization. She has found that her volunteer activities and her job complement one another. "I have acquired skills through the Hopkins Project that I wouldn't necessarily have received through my job."



George Bowman, Melanie Buss, Dan Cummings, Megan Edwards, Dave Frank, Thea Hodge, Carlos Marino, Pat Troolin, Mary Bunde: These people in Mendota Heights are participants in MAP, the Management Assistance Project. The purpose of this program is to link volunteers with not-for-profit agencies. These people serve either as volunteer management consultants or board members. Explains Mel Mitchell, company liaison, "MAP provides another dimension through which employees can develop themselves. Through this program, they can explore areas of expertise that they currently may or may not be using at their jobs — it's another source of both personal and professional enhancement."



Marlow Fredrick: A member of the National Ski Patrol System for over 23 years, Marlow is now a ski patrol director at the Mt. Hardscrabble ski area in Rice Lake, WI., and holds the 1985 outstanding service award. "Our primary purposes are to care for injured skiers and to promote ski safety," Marlow comments. "I love what I am doing — and that really makes a difference when it comes to dedication. Being a volunteer for this organization is a primary part of my life — and I give it everything I've got. I think that volunteering is something that brings out the best in people."

Functionality sells our systems

Five years ago, Cray Research had one hardware product, one operating system, and one compiler. Today, the company supports three hardware products, two operating systems, and several compilers. We've come a long way in a few short years.

Chippewa Falls continues to enhance and expand our product line, and Cray's operating system and compiler teams support these developments. Providing additional functionality and tools to support these systems is the responsibility of Cray's Libraries and Product Set group in Mendota Heights.

"The target of our group is to improve the total product," says Peter Rigsbee, manager of Libraries and Product Set in Mendota Heights. "Our group provides features and routines that increase the functionality and performance delivered to our users."

Terms, terms, terms

As in the classical sense, libraries are collections of information or knowledge. In the case of software, this means a set of commonly used functions and routines that are related to our operating systems and compilers. Cray's libraries are grouped according to functions. While the names of the libraries vary by operating system and machine, the functional areas include:

- an arithmetic library,
- a scientific library,
- an input/output library,
- a utility and miscellaneous library,
- a language-specific support library, and
- an operating system specific support library.



Besides accommodating multitasking and multiprocessing, Dennis Moen and Jeff Nicholson provide tools that help users understand how to increase the performance of their systems.

Within these libraries are subprograms that allow users to perform any number of functions, from acquiring data to solving linear equations.

Products, tools, and utilities are terms that are used interchangeably to describe programs that maximize performance or enable users to do their jobs with greater ease. While some of these products are necessary to get at the features of Cray's hardware, others are directed at helping users develop and maintain their code.

For example, a loader is a product that puts together user code and library subroutines to build the complete application. While compilers take source code and translate it to instructions the machine can understand, the instructions cannot execute until the loader links them into one unit for processing.

A debugger, on the other hand, is an analysis tool. It helps users find problems in their code in a fast and efficient manner. System developers and end-users alike use a debugger to reference

objects in a program and locate code errors that have gone through translation.

"Cray Research has always supplied debugging tools," says Barb Theisen, libraries and product set (MH). "As the nature of programming changes, however, more interactive debugging and additional capabilities are required. Because a debugger is an important tool for both users and system developers, people in our department and throughout software development use this tool. This means that we are the first to try our own products."

Hardware, software and customer needs

New hardware, new software, and customer needs are the priorities of our Libraries and Product Set group. Many of our libraries and products have reached the point where they must be rewritten to include features that take advantage of new hardware and software.

Multiprocessing for the CRAY X-MP system is one example. "The CRAY X-MP system was our first experiment with multiprocessing," says Jeff Nicholson, libraries and product set (MH), "and it is extremely successful. We learned from that machine, and we are continuing to improve on that software. A strong parallel can be drawn between early years of vectorization and where we are with multiprocessing today."

Besides accommodating multitasking and multiprocessing, Cray Research provides tools that aid in performance analysis. These tools help users understand where they are spending time, how to increase speed with vectorization aids, and what programs can be processed in parallel.

These features now are supported in two operating systems, COS and UNICOS. With the help of our Libraries and Product Set group, UNICOS is expected to have the functionality of COS by 1988. As many as 150 commands and utilities are available today.

Marketing groups throughout the company are important resources for our libraries and product set team. "We've taken products and routines that were originally developed by benchmarking and applications to meet specific customer needs," says Peter Rigsbee. "Our contacts in benchmarking and applications provide a marketing perspective for our efforts."

Much of our library software is customer driven, explains Dennis Moen, libraries and product set (MH). "Customers moving from a different vendor to Cray Research often want to transfer data from one machine to another without rewriting. Our implicit and explicit data conversion

programs, such as those to and from DEC, CDC, IBM, and other formats, help Cray systems fit into other environments. These programs sometimes are requested in the proposal."

As customers increase their understanding of Cray systems, continued enhancements to existing products also are required. "In the light of new knowledge, the perceptions and expectations of products change," says Otto Tennant, libraries and product set (MH). "Besides mandatory support for new hardware and software, our group increases the functionality of our current systems by adding libraries and products that enhance the capabilities of our end-users."



Cray's Libraries and Product Set team provides functionality that sells our systems. Through the efforts of people like Peter Rigsbee and Alan Mayer, UNICOS is expected to have the functionality of COS by 1988.



New hardware, new software, and customer needs are priorities for George Behnke and Otto Tennant, members of Cray's Libraries and Product Set team.

The next generation

Architectural changes and rapid advances in hardware and software make portability an issue for all development teams. The company's larger CRAY X-MP systems, which have extended addressing, are incompatible with our original loader. Cray's newest loader, SEGLDR, is based on public domain software from the Lawrence Livermore National Laboratories. "Like any development effort, we have to build and convert products that can move to the next generation of machine," says George Behnke, libraries and product set (MH). "We must have performance, as well as portability, in mind for all our products and libraries."

For nearly fifteen years Cray Research has been working to provide superior computational power to users. New hardware and software support this goal. Cray's Libraries and Product Set team complements these efforts by focusing on customer needs. "At Cray Research, customer needs and product developments are closely aligned," says Alan Mayer, libraries and product set (MH). "Much of our work is customer-driven, and the nature of those needs means that we are performance-driven."

A new marketplace

Ten years ago, the market for supercomputers had yet to be proven. For the future, however, market research companies estimate system installations to grow in excess of 30 percent annually. This growing market means several things to Cray Research: a larger customer base, increased revenues, and also, more competition. Cray Research is no longer alone in its niche. ETA Systems, IBM, Fujitsu, Hitachi, and NEC are only a few of the familiar names looking for a piece of the pie.

Maintaining the degree of success Cray Research has achieved and enjoyed over the past ten years requires an increased understanding and awareness of the competition. To meet this need, a new position was created in commercial marketing. This post, called competitive analysis, is uniquely designed as a one-year rotating position.

By rotating the responsibilities for competitive analysis, the company is able to take advantage of field experience and help expose field representatives to a new environment, new people, and new challenges.

According to Vice President of Commercial Marketing Bob Ewald, the position involves collecting and interpreting information from many sources, providing technical analyses of the competition, and recommending counter strategies. "It's a job that requires a good overall understanding of supercomputer architectures, software, and marketing strategy and tactics. An ability to communicate effectively also is necessary since there are many presentations to Cray management and the field."

Moving to Minneapolis last October, Bruce White is the first person to fill the position. Bruce

came to Cray Research in 1979 from our first customer, Los Alamos National Laboratories. In his seven years with Cray Research, Bruce has held several positions in the field: pre-sales analyst, analyst-in-charge, and district analyst manager.

Working alongside the customer and the competition has provided Bruce with practical experience that he applies to this new



Bruce White



Bob Ewald

position. "While newspapers, magazines, technical journals, and conferences are important sources of information, my best data comes from people in the field," says Bruce. "People at sites and region offices continue to be one of the best resources for gathering competitive information."

Information gathered from this position assists in efforts throughout the company — from development to marketing. And both the position and Bruce's performance have proved successful. Besides an increased understanding of the supercomputer industry from a financial, marketing, technical, and competitive perspective, the

position of competitive analysis holds a message for each of us at Cray Research.

"There is competition, and that competition is very serious about succeeding," Bruce notes. "Their architectures, chip technologies, and software are state-of-the-art. They have billions of dollars in revenue, and they have intelligent, dedicated employees. The next few years promise to be highly competitive. This period will test our dedication and determination to stay number one. All of us at Cray Research will have to work very hard to maintain our current market position."

Translating this into personal responsibilities means focusing on our mission. "We must keep in mind the things that are important," Bruce emphasizes. "This means delivering high-quality, high-performance products to our customers and following up with outstanding support. When potential buyers compare products with roughly the same performance, they consistently choose the vendor they consider most reliable, a company they can trust. This is why quality is critical in our products and services. If we all focus on quality in our hardware, software, and customer relations, I have no doubt that Cray will stay the market leader."

As the year nears an end, Bruce is preparing to move to a new position in the corporate office. Meanwhile, Paul Gust from the Western Region is arranging a move to Minneapolis to fill the position for competitive analysis. For Bruce it has been an excellent experience. "I've gained a perspective of the company that couldn't be developed anywhere else." And for Cray Research, Bruce has provided valuable information for entering the next ten years in an aggressive new market.

1986 Performance Objectives update

Every year presents new challenges for Cray Research — challenges that impact our ability to design, manufacture, market, and support the world's fastest computers. Objectives established at the beginning of the year identify many of those challenges. The following mid-year report shows our progress toward those objectives.

Financial

Goal: Generate operating income equivalent to 30 percent of revenue and achieve return on stockholders' average equity of at least 20 percent.

Progress: Operating income for the six months ended June 30th was 42 percent of revenue. The year-end forecast is for operating income and return on stockholders' average equity to surpass stated goals.

Goal: Establish effective corporate systems and controls resulting in no material internal control deficiencies being included in management letter to Audit Committee by external auditors.

Progress: There were no management letter comments or internal control deficiencies noted in the management letter to the audit committee by Peat, Marwick, Mitchell & Co. at the May 1986 Audit Committee meeting.

Goal: Manage cash balances so that sufficient borrowing facilities are competitively maintained and excess cash balances are invested within the Board of Directors guidelines.

Progress: The Board of Directors approved a new investment policy in January, and Cray's financial team has maintained our investments in accordance with that policy. Additionally, the company successfully negotiated a \$50 million revolving line of credit and completed a public offering of \$115 million of convertible subordinated debentures in the first quarter of 1986.

Goal: Assist customers in obtaining competitive financing for the purchase of Cray computer systems resulting in no lost customers solely because financing cannot be found.

Progress: In the first six months of 1986, the company completed approximately \$125 million of end-user financing for purchases of Cray systems. To date, the company has been successful in attracting financing for all customer requests and no problems are expected for 1986 installations requiring financing.

Goal: Address recruitment challenges of the company, and provide new program design and support for management and employee development.

Progress: Total employment increased to 3,833 at the end of June from 3,180 at the end of 1985. Although interest in working for Cray Research continues to be strong (14,470 applications processed during the first five months), matching applicant abilities to the company's needs is less satisfactory. The staffing group continues to look at alternative methods for advertising, exposure, and recruitment to reach a broader audience.

During the first five months of the year, 1,616 employees attended in-house employee and management development courses. Six new courses are available through employee development, and four new courses are included in the management development program.



Marketing

Goal: Obtain 40 contracts.

Progress: As of June 30, 1986, 22 contracts have been signed; 15 from North America and seven from international.

Goal: Install 41 new machines at customer sites.

Progress: Twenty Cray systems were accepted as of June 30, 1986.

Goal: Develop and implement a program to ensure customer satisfaction with Cray Research products and services.

Progress: Bruce Kasson has been assigned to lead this program. A customer satisfaction survey has been completed; and implementation will begin in third quarter 1986.

Goal: Develop and implement a plan to open new geographies.

Progress: Barry Utting was appointed as General Manager of the Far East with its base of operation in Hong Kong. He is responsible for Australia, Korea, Taiwan, China, Malaysia, Singapore, and Hong Kong. Japan remains a separate entity.

Goal: Develop comprehensive product requirement document (PRD) for software.

Progress: The PRD was completed on May 22 and was submitted to Software Development in June. The PRD describes marketing software needs for the next three years and prioritizes the projects.

Software and Hardware Development

Goal: Improve Cray Research software and hardware reliability.

Progress: Software and hardware reliability is continuing to improve.

Goal: Provide employee development and training programs.

Progress: Several programs are in place to develop the skills of Cray people for current and future needs. The addition of the UNITE program in January of 1987 will help fill the needs of people in Chippewa Falls.

Goal: Produce compilers and operating systems for the CRAY-2, CRAY X-MP, and CRAY X-MP follow-on products.

Progress: The releases of CFT-2, CFT77, COS 1.15, and UNICOS are improving software support for Cray products. Efforts are continuing on CFT 1.15.

Goal: Continue the disk development program and enhance the reliability of the existing disk product.

Progress: Disk development projects are proceeding on schedule. Disk reliability has improved during first and second quarters of 1986.

Goal: Provide hardware and software support for the CRAY X-MP follow-on systems.

Progress: Hardware design and development are the pacing items for follow-on projects. Engineering, software, and manufacturing support teams are ready.

Goal: Continue to develop IC capability to support new products.

Progress: Progress is being made in our IC capability. Turnaround time and reliability issues need additional work.

Manufacturing

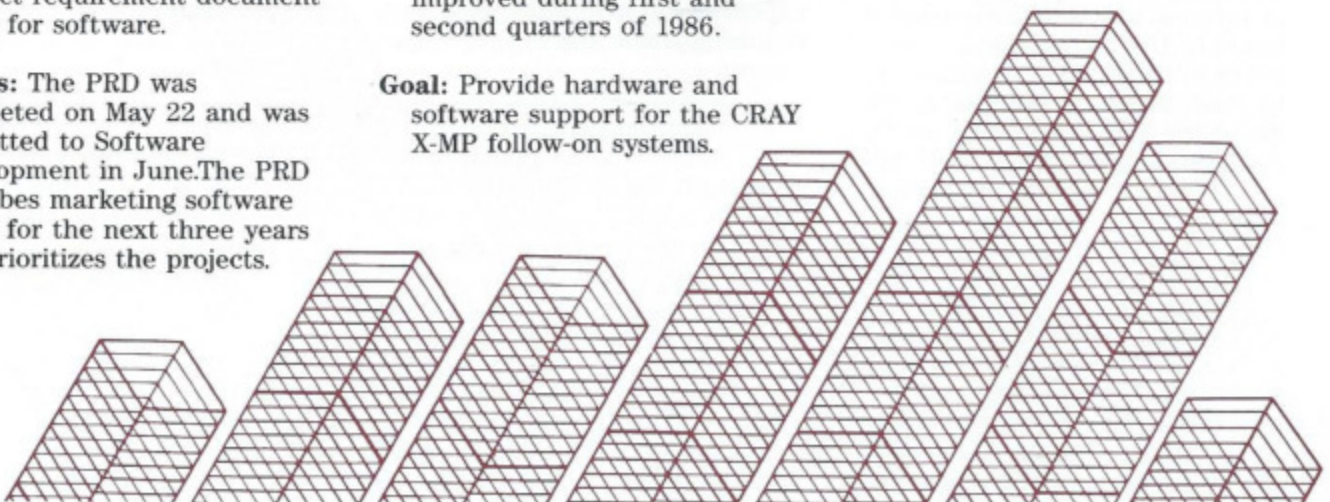
Goal: Improve overall system reliability.

Progress: Reliability did not improve as expected in the first quarter. However, second quarter shows several 100% customer acceptances.

Goal: Improve employee training and motivation programs.

Progress: A number of supervisor training programs are in place. These programs include: general employee video training, monthly supervisor and manager meetings, and general manufacturing meetings.

Goal: Ship new systems to meet delivery allocation schedule.



Progress: Some delays in the first six months will result in 39 or 40 new systems being shipped in 1986. This is above the original 32 systems scheduled, and below the revised goal of 41.*

Goal: Control stockroom inventory and work in-process.

Progress: Inventory is under control, with expectations of meeting specific goals.

Goal: Complete transition from Qantel to Honeywell computer system for Chippewa Falls.

Progress: Conversion is progressing with expectations to complete the transition to the Honeywell system by year-end.

New Product Development

Goal: Ensure a stable IC prototyping process for CRAY X-MP follow-on, including CAD option development, mask-making, fabrication, packaging, and final test.

Progress: Mask-making software and IC design rule checkers are in production. An initial version of the fault simulator is available. Optimization of the interactive drawing package is in progress, and the automatic router is in operation. Hardware and process operations are being

optimized for routing mask-making. All wafer testing operations will be supported by the second half of 1986. IC fabrication and packaging groups intend to have yields maximized by the end of 1986. By mid-1986, IC processing and packaging groups developed approximately 50 new options, processed over 500 wafers yielding over 5,000 die, and packaged in excess of 3,500 die.

Goal: Develop IC front-end process for IC devices from bare wafer up as a learning vehicle for next-generation devices.

Progress: A general agreement for process technology has been established, with contractual agreement in final negotiation. Selection of wet bench is nearing completion, and equipment is being characterized. Major software packages have been installed for future device development.

Goal: Complete initial definition of architecture concept, devices, hardware design rules, module/system packaging and cooling concepts for follow-on systems.

Progress: Projects for developing future VLSI devices are in process. A lab is being established for developing high-performance optical interconnect devices and circuitry. Staffing, laboratories, and equipment are in place for experimentation of module substrate buildup and IC die-bonding. Initial definition of system packaging/cooling concepts are complete with verification tests being set up. The definition of system architecture will be undergoing detailed study in the second half of 1986.

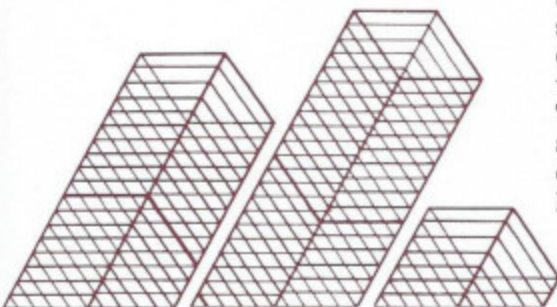
Goal: Initiate a memory design project to develop the memory devices required for follow-on systems.

Progress: A design project for high-performance ECL-compatible memory is progressing, with nearly all equipment in place and in use. The final design is expected to be complete by the end of 1986, and the first silicon chip will be sampled in the second half of 1987.

Goal: Establish an initial base for future software products, including operating system, compiler, utilities, and libraries; demonstrate on CRAY X-MP and CRAY X-MP follow-on machines for multiprocessing, multiprocessing, multitasking, and microtasking performance under FORTRAN/UNIX user environment.

Progress: A pre-release of UNIX System V Release 2 has been delivered, and another pre-release is scheduled for fourth quarter 1986. Multiprocessing/multiprogramming systems are in testing stages, with multitasking and autotasking operating system support scheduled for testing in third quarter 1986. Autotasking capability in the FORTRAN compiler will occur in third quarter 1986 along with Nastran testing on a CRAY X-MP system.

*Note: Targeted numbers for shipments and installations can differ from systems shipped because December shipments usually are counted in January installations.



News Briefs

Grumman at Marshall Space Flight Center

On July 2, Cray Research announced that Grumman Data Systems Corporation installed a CRAY X-MP computer system at the George C. Marshall Space Flight Center (MSFC) in Huntsville, Alabama during May 1986. The system has four central processing units and four million words of central memory. The system was purchased and is valued at \$12.1 million.

The CRAY X-MP computer is an integral part of the Engineering Analysis and Data System (EADS) provided by Grumman at the Marshall center. EADS is used for engineering and scientific data acquisition, reduction, display, and analysis in support of space programs.

University of Toronto

On July 2, Cray Research announced that a CRAY X-MP/22 supercomputer with a Solid-state Storage Device will be installed at the University of Toronto during the fourth quarter of 1986. The system is valued at about \$6.4 million dollars.

The CRAY X-MP computer system will be used by Ontario universities and commercial users for various research projects. The need for supercomputing power in Canada is expected to continue to grow. Dr. David Nowlan, Vice President of Research for the University of Toronto explained, "Our aspiration is to upgrade this facility to the next-generation Cray supercomputer in three or four years and then with more powerful equipment in the 1990s."

Second quarter financial results

On July 21, Cray Research reported revenue of \$179,902,000 and net earnings of \$44,483,000 equal to \$1.41 per share, for the second quarter ended June 30. This compares with revenue of \$77,226,000 and net earnings of \$13,639,000, or 45 cents per share, in the second quarter of 1985.

Revenue for the first six months of 1986 was \$321,923,000 compared with \$195,930,000 for the first half of 1985. Net earnings were \$75,365,000 or \$2.41 per share, compared with \$44,478,000 or \$1.47 per share, for the same period a year ago.

During the second quarter, the company installed 11 new computer systems, all purchased. In last year's second quarter, four new systems were installed, all purchased. The company's

CRAY RESEARCH, INC. AND SUBSIDIARIES

Consolidated Summary of Earnings
(Unaudited)

(In thousands, except per share data)	Three months ended June 30		Six months ended June 30	
	1986	1985	1986	1985
Revenue	\$ 179,902	\$ 77,266	\$ 321,923	\$ 195,930
Operating cost and expenses	99,649	53,869	186,657	119,550
Operating income	80,253	23,397	135,266	76,380
Other income	1,885	1,361	3,861	2,482
Earnings before income taxes	82,138	24,758	139,127	78,862
Provisions for income taxes	(37,655)	(11,119)	(63,762)	(34,384)
Net earnings	44,483	13,639	75,365	44,478
Earnings per common and common equivalent share	\$ 1.41	\$.45	\$ 2.41	\$ 1.47
Average number of common and common equivalent shares outstanding	32,203	30,194	31,764	30,139

financial results are influenced significantly by the number of computer systems accepted during the period and by whether systems are purchased or leased.

In the first half of 1986, 20 new systems have been installed, 17 of them purchased. John Rollwagen said that expectations for the second half of the year were to install a similar number of systems, but with fewer being purchased.

Rollwagen went on to say that the company has obtained 22 orders during the first six months of the year, ten of them from customers who would be receiving their first Cray computer system.



Community Affairs Coordinator, Joanne Whiterabbit

Joanne Whiterabbit

On June 16, Joanne Whiterabbit joined Cray Research to manage the company's matching gifts and employee volunteerism programs. She is a recent graduate of Augsburg College and a former employee of Honeywell, Inc., where she worked in the Human Resources/Community Relations area. As Community Affairs Coordinator, Joanne will be responsible for all phases of Cray's employee matching gifts program, including the new annual grant for volunteer activities and the

annual fall United Way (payroll deduction) campaign in the Twin Cities. Any questions regarding these programs can be directed to Joanne in Minneapolis at extension 241.

Economic association presents award to Cray Research

In honor of its contributions to the economic vitality of the state of Wisconsin, Cray Research received one of three statewide awards given by the Wisconsin Economic Development Association (WEDA).

According to Chamber Director Dennis Johnson, Cray Research was nominated for the award by the Chippewa Falls Chamber of Commerce. Marc Harding, human resources manager in Chippewa Falls, accepted the award on June 12.

Deanna Piltlen, WEDA executive assistant, said that this is the second year that WEDA has presented the economic development awards. Cray Research was selected by WEDA's board of directors based on exceptional contributions in these areas: expansion and retention of employment in Wisconsin; enhancement of the community's and state's economic base; and improvement of the community's and state's business climate.

Are you a Cray communicator?

On September 10, 11, and 12, the Corporate Communications department is sponsoring a meeting that will bring together people with communications responsibility at Cray Research.

During the three days, people will have the opportunity to participate in a number of presentations and discussion groups related to communications at Cray Research. The meeting is

broken into four sections, and people may elect to attend any or all of the program selections.

- **Part I** is a skills-building program for writing.
- **Part II** deals with communications and human resources issues at Cray Research and covers skills related to photography, layout, and design.
- **Part III** provides an overview of Cray's products and discusses topics related to Cray's technical activities.
- **Part IV** deals with security, disclosure, and SEC requirements for communications.

The meeting will be held at Embassy Suites in Bloomington, Minnesota. The seminar is free to Cray employees. Participants are responsible for airfare and hotel costs.

If you are interested in attending, contact Jean Eggerman, ext. 121 in Minneapolis.

A picture is worth a thousand

Pictures are worth a thousand words, right? If they are in the wrong hands, they can be worth thousands of dollars too. Photographs of the company's proprietary processes, which may be a simple tool or a few lines of code on a computer terminal, can tell people much more than a thousand words. If you want to remember your colleagues by taking a photo, you must acquire a camera pass before bringing a camera into any of our facilities. Visitors who wish to bring cameras into our facilities must have a pass and be accompanied by a Cray employee. If you need a camera pass, contact the facility security administrator at the building involved.

A gift of life

5/21/86
To whom it may concern:

Words seem so inadequate when expressing my feelings about my kidney transplant. When Emory called me and said they might have a kidney for me, my very first reaction was to sit down and cry. The realization hit me, quite suddenly, that someone had passed away in order for me to be so fortunate!! The irony of the situation was almost too much! That something so good can really come from something so tragic and traumatic,

made me stop and think. Afterward, my overall joy began to seep out of every pore in my body. I just couldn't believe that after all this time, I would finally be free of my kidney disease and the pains and frustrations of daily dialysis treatments. Finally, I ~~would~~ ^{could} once again be unrestricted and able to live a fairly normal life. I know you can imagine how that feels! However, even though I am very, very happy right now, a part of me will always remember

the certain unbearable grief your family has had to endure. My thoughts will always be with you, and I just want you to know how deeply sorry I feel at your loss.

Thank you!

These are the words of someone who recently received a very special gift — a gift of life. Donnie Mayer, the 21-year old son of Cray Research's Donna Mayer, was killed last May in a tragic motorcycle accident. Ironically, his death made it possible for others to live. Donnie had agreed to donate his organs, and in doing so, he gave someone else another chance at life.

Organ transplants give a second chance to people with no other hope. Unfortunately, there are thousands of people throughout the world who are waiting for this second chance. The medical technology is available, but unless an organ is found in time, the opportunity for a longer and healthier life is lost.

Studies show that over 70 percent of Americans are willing to donate organs and tissues of deceased loved ones — but most will not think of it when the situation arises. And although most of us consider organ donation, it's usually only when we are renewing our driver's licenses. As a result, more than 20,000 potential donors die each year, and unfortunately, thousands of potential recipients go on waiting.

To help combat this problem, some states are passing laws requiring medical personnel to ask the survivors of deceased patients to consider consenting to the gift of all or any part of the deceased person's body. In Wisconsin, this law was passed unanimously last April by both houses of the Legislature and went into effect July 1. The final decision to donate rests with the family. "Knowing that because of our son Donnie, others have had a chance to live a more normal life, has been a comfort to us," says Donna Mayer. "It is as if he is living on in the lives of those he helped."

Generally speaking, organ donors are previously healthy individuals who have suffered some catastrophic brain injury that results in brain death, and whose vital organ function is artificially supported. After all measures to prevent brain death have failed, other healthy organs — kidneys, heart, and liver — remain undamaged and suitable for donation.

All organ donors must meet the legal and medical criteria for brain death, whereas tissue (eye, bone, skin) donation is a possibility after any clinical death. While the declaration of brain death is a clinical one, it is to be determined and documented in accordance with state laws and existing hospital policies.

If you are interested in learning more about organ donation, a call to a local hospital or university clinic will provide a starting point. Or you can call 1-800-446-2726 to get a brochure and a donor card from the Organ Center in Richmond, Va.

August 1986
Volume 9 Number 7

Interface is published by the Corporate Communications Department, Cray Research, Inc., 608 Second Avenue South, Minneapolis, Minnesota 55402 Telephone (612) 333-5889

Jean Eggerman, Editor
Kathy S. Neessen, Contributing Writer
Eric Hanson and Cindy Rykken, Graphics

Cray Research is an equal opportunity employer practicing affirmative action with regard to race, creed, color, religion, sex, sexual preference, age, national origin, and physical and mental disability.

CRAY, CRAY-I, and SSD are registered trademarks of Cray Research, Inc. UNICOS is a trademark of Cray Research, Inc. The UNICOS system is derived from the AT&T UNIX system; UNIX is a trademark of AT&T Bell Laboratories. CDC is a registered trademark of Control Data Corporation. DEC is a trademark of Digital Equipment Corporation. IBM is a registered trademark of International Business Machines. NEC is a trademark of Nippon Electric Corporation.

© 1986, Cray Research, Inc.